

**Amendments to the Claims:**

Please cancel claim 25.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-23 (Canceled).

24 (Currently Amended). A method for designing a core of golf ball having a specific coefficient of restitution, the method comprising:

determining a desired coefficient of restitution for a core of a golf ball, the desired coefficient of restitution equal to or greater than 0.783;

selecting a selected polybutadiene material from a plurality of polybutadiene materials, each of the plurality of polybutadiene materials having a distinct solution viscosity wherein a higher value of solution viscosity of the polybutadiene material corresponds to a higher coefficient of restitution for a core of a golf ball, wherein the plurality of polybutadiene materials comprises

a first polybutadiene material having a solution viscosity of 90 Mpa\*s and

a coefficient of restitution of 0.783,

a second polybutadiene material having a solution viscosity of 100 Mpa\*s

and a coefficient of restitution of 0.785,

a third polybutadiene material having a solution viscosity of 150 Mpa\*s

and a coefficient of restitution of 0.787, and

a fourth polybutadiene material having a solution viscosity of 160 Mpa\*s  
and a coefficient of restitution of 0.788;

mixing ~~the selected~~ a polybutadiene with a plurality of other  
components to create the selected polybutadiene material ~~a polybutadiene mixture~~; and  
forming a core for a golf ball from the selected polybutadiene  
material ~~polybutadiene mixture~~, the core having the desired coefficient of restitution.

25 (Canceled).

26 (Previously Presented). The method according to claim 24 wherein each of the  
plurality of polybutadiene materials has a Mooney viscosity ranging from 38 to 52.